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10/589,289	08/11/2006	Satoshi Kondo	2006_1267A	7167

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EXAMINER	
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ART UNIT	PAPER NUMBER
2482	

NOTIFICATION DATE	DELIVERY MODE
10/12/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/589,289	KONDO ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER FINDLEY	2482	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-35* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-35* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *See Continuation Sheet*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :8/11/2006, 4/02/2009, 5/12/2009, 1/26/2011.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 24 and 35 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 34 and 35 set forth a "program." The United States Patent and Trademark Office (USPTO) is obliged to give claims their broadest reasonable interpretation consistent with the specification during proceedings before the USPTO. *See In re Zletz*, 893 F.2d 319 (Fed. Cir. 1989) (during patent examination the pending claims must be interpreted as broadly as their terms reasonably allow). The broadest reasonable interpretation of a claim drawn to a program not explicitly stored on a non-transitory medium typically covers forms of both non-transitory tangible media and transitory propagating signals *per se* in view of the ordinary and customary meaning of computer readable media, particularly when the specification is absent an explicit definition or is silent. *See* MPEP 2111.01. When the broadest reasonable interpretation of a claim covers a signal *per se*, the claim must be rejected under 35 U.S.C. § 101 as covering non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007) (transitory embodiments are not directed to statutory subject matter) *and Interim Examination Instructions for Evaluating Subject Matter Eligibility Under 35 U.S.C. § 101, Aug. 24, 2009; p. 2.*

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5-6, 8, 12-13, 17-19, 21, 25-26, and 30-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. (US 6249610 B1, hereinafter referred to as "Matsumoto").

Re **claim 1**, Matsumoto discloses an image coding method of coding an input image, said method comprising: a coding step of coding an input image and generating a bit stream including the coded input image (Matsumoto: Fig. 1A, DCT coefficient coding section performs coding on DCT coefficients generated from the input picture); a decoded image generation step of generating a decoded image by decoding the coded input image (Matsumoto: Fig. 1A, filter selecting section 14 accepts input from the result 109 of inverse two-dimensional DCT processing section 24); and a parameter generation step of generating a parameter for making the decoded image more closely resemble the input image, based on a frequency component of at least one of the input image and the decoded image (Matsumoto: Fig. 1A, filter information coding section 15).

Re **claim 2**, Matsumoto discloses that in said parameter generation step, the parameter is generated by performing frequency transform on the decoded image and the input image and deriving a difference between frequency transform coefficients of the decoded image and the input image which are obtained by the frequency transform (Matsumoto: column 5, lines 12-21, the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter).

Re **claim 3**, Matsumoto discloses that in said parameter generation step, the parameter is generated using discrete cosine transform as the frequency transform (Matsumoto: Fig. 1A, DCT is the frequency transform used).

Re **claim 5**, Matsumoto discloses that in said parameter generation step, the parameter is generated per image area by deriving a difference between frequency transform coefficients of the decoded image and the input image on a per image area basis (Matsumoto: column 4, lines 13-20, the picture is divided into blocks; column 5, lines 12-21, the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter).

Re **claim 6**, Matsumoto discloses that in said parameter generation step, the parameter is generated by extracting an edge component of the decoded image and an edge component of the input image and deriving a difference between the edge components (Matsumoto: column 2, line 63-column 3, line 4, judgment of whether the edge of the input picture causes discontinuity is used as a basis for determining the filter type).

Re **claim 8**, Matsumoto discloses that in said parameter generation step, the parameter is generated per image area by deriving a difference between edge components of the decoded image and the input image on a per image area basis (Matsumoto: column 5, lines 12-21, the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter).

Re **claim 12**, Matsumoto discloses an identification information generation step of generating identification information for identifying processing used for generating the parameter in said parameter generation step (Matsumoto: column 5, line 66-column 6, line 8, filter characteristics are determined and then coded to be multiplexed with the transmitted picture data).

Re **claim 13**, Matsumoto discloses a multiplexing step of multiplexing the parameter generated in said parameter generation step, into the bit stream generated in said coding step (Matsumoto: Fig. 1A, coded filter information 106 is multiplexed with coded picture data 104 by multiplexing section 16 and the multiplexed data stream 107 is transmitted).

Claim 17 recites the corresponding decoding method for decoding the data generated by the encoding method of claim 1. Since Matsumoto discloses a corresponding decoder (Fig. 1B) for the encoder (Fig. 1A) used to reject claim 1, arguments analogous to those presented for claim 1 are applicable to claim 17. Therefore, claim 17 has been analyzed and rejected with respect to claim 1 above.

Re **claim 18**, Matsumoto discloses that said image quality improvement step includes: a frequency transform step of generating a first frequency transform coefficient by performing frequency

transform on the decoded image (Matsumoto: Fig. 1B, DCT coefficient decoding section 22); a coefficient correction step of generating a second frequency transform coefficient by correcting the first frequency transform coefficient using the parameter (Matsumoto: Fig. 1B, filter information coding section 25); and an inverse frequency transform step of generating the high quality decoded image by performing inverse frequency transform on the second frequency transform coefficient (Matsumoto: Fig. 1B, inverse two-dimensional DCT processing section 24).

Re **claim 19**, arguments analogous to those presented for claim 3 are applicable to claim 19. Therefore, claim 19 has been analyzed and rejected with respect to claim 3 above.

Re **claim 21**, arguments analogous to those presented for claim 6 are applicable to claim 21. Therefore, claim 21 has been analyzed and rejected with respect to claim 6 above.

Re **claim 25**, arguments analogous to those presented for claim 12 are applicable to claim 25. Therefore, claim 25 has been analyzed and rejected with respect to claim 12 above.

Re **claim 26**, Matsumoto discloses that in said parameter obtainment step, the parameter is obtained by separating the parameter from multiplexed information in which the bit stream and the parameter are multiplexed (Matsumoto: Fig. 1B, inverse multiplexing section 21).

Claim 30 recites the corresponding image coding device for implementing the coding method of claim 1. Therefore, claim 30 has been analyzed and rejected with respect to claim 1 above.

Claim 31 recites the corresponding image decoding device for implementing the decoding method of claim 17. Therefore, claim 31 has been analyzed and rejected with respect to claim 17 above.

Claim 32 recites the corresponding image coding integrated circuit for implementing the coding method of claim 1. Matsumoto discloses that the functions of the coding apparatus and decoding apparatus are implemented by executing its computer program recorded in a recording medium in a computer, wherein computers inherently include integrated circuitry. Therefore, claim 32 has been analyzed and rejected with respect to claim 1 above.

Claim 33 recites the corresponding image decoding integrated circuit for implementing the decoding method of claim 17. Matsumoto discloses that the functions of the coding apparatus and decoding apparatus are implemented by executing its computer program recorded in a recording medium in a computer, wherein computers inherently include integrated circuitry. Therefore, claim 33 has been analyzed and rejected with respect to claim 17 above.

Claim 34 recites the corresponding image coding program for implementing the coding method of claim 1. Matsumoto discloses that the functions of the coding apparatus and decoding apparatus are implemented by executing its computer program recorded in a recording medium in a computer, wherein computers inherently include integrated circuitry. Therefore, claim 34 has been analyzed and rejected with respect to claim 1 above.

Claim 35 recites the corresponding image decoding program for implementing the decoding method of claim 17. Matsumoto discloses that the functions of the coding apparatus and decoding apparatus are implemented by executing its computer program recorded in a recording medium in a computer, wherein computers inherently include integrated circuitry. Therefore, claim 35 has been analyzed and rejected with respect to claim 17 above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 4, 7, 9, 14-16, 20, 22, 23, and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 6249610 B1) in view of Kokemohr (US 20070172140 A1).

Re **claim 4**, Matsumoto does not specifically disclose that in said parameter generation step, the parameter is generated using discrete wavelet transform as the frequency transform. However, Kokemohr discloses a scheme for selective enhancement of digital images, wherein filtering may be based on wavelets (Kokemohr: paragraph [0090]).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 7**, Matsumoto does not specifically disclose that in said parameter generation step, the parameter is generated by generating, as the edge components, a Laplacian image of the decoded image and a Laplacian image of the input image and deriving a difference between the Laplacian images. However, Kokemohr discloses a scheme for selective enhancement of digital images, wherein filtering may be based on a Laplace pyramid (Kokemohr: paragraph [0090]).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 9**, Matsumoto discloses that the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter (Matsumoto: column 5, lines 12-21), but does not specifically disclose that in said parameter generation step, the parameter is generated by performing frequency-based filtering on one of the decoded image and the input image and comparing the filtered one of the images with the other. However, Kokemohr discloses a scheme for

selective enhancement of digital images, wherein filtering may differentiate between various frequencies/bands (Kokemohr: paragraph [0090]).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 14**, Matsumoto discloses that in said coding step, an input image is coded and a bit stream is generated (Matsumoto: Fig. 1A, blocks 11, 12, and 13), and in said parameter generation step, the parameter is generated based on at least one of: the decoded image; and the input image or the input image on which the pre-processing has not been performed (Matsumoto: column 5, lines 12-21, the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter).

Matsumoto does not specifically disclose a pre-processing step of performing predetermined pre-processing on the input image. However, Kokemohr discloses a scheme for selective enhancement of digital images, wherein filtering may differentiate between various frequencies/bands (Kokemohr: paragraph [0090]).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 15**, Matsumoto does not specifically disclose that in said pre-processing step, one of: image size reduction processing; low-pass filtering; and frame rate reduction processing is performed on the input image. However, Kokemohr discloses a scheme for selective enhancement of digital images,

wherein filtering may differentiate between various frequencies/bands (Kokemohr: paragraph [0090]), including low frequencies (Kokemohr: Table 1).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 16**, Matsumoto does not specifically disclose a pre-processing parameter generation step of generating a pre-processing parameter indicating details of the pre-processing performed in said pre-processing step. However, Kokemohr discloses several parameters (Kokemohr: Table 1).

Since both Matsumoto and Kokemohr relate to noise filtering in digital images, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the frequency band filtering capabilities of Kokemohr with the system of Matsumoto in order to provide a system of selectively filtering particular frequency bands, thus allowing a user more control over image enhancements (Kokemohr: paragraph [0006]).

Re **claim 20**, arguments analogous to those presented for claim 4 are applicable to claim 20. Therefore, claim 20 has been analyzed and rejected with respect to claim 4 above.

Re **claim 22**, arguments analogous to those presented for claim 7 are applicable to claim 22. Therefore, claim 22 has been analyzed and rejected with respect to claim 7 above.

Re **claim 23**, arguments analogous to those presented for claim 9 are applicable to claim 23. Therefore, claim 23 has been analyzed and rejected with respect to claim 9 above.

Re **claim 27**, arguments analogous to those presented for claim 14 are applicable to claim 27. Therefore, claim 27 has been analyzed and rejected with respect to claim 14 above.

Re **claim 28**, arguments analogous to those presented for claim 15 are applicable to claim 28. Therefore, claim 28 has been analyzed and rejected with respect to claim 15 above.

Re **claim 29**, arguments analogous to those presented for claim 16 are applicable to claim 29. Therefore, claim 29 has been analyzed and rejected with respect to claim 16 above.

7. Claims 10, 11, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US 6249610 B1) in view of Kokemohr (US 20070172140 A1), and further in view of Chui et al. (US 7570832 B2, hereinafter referred to as "Chui").

Re **claim 10**, neither Matsumoto nor Kokemohr specifically discloses that in said parameter generation step, filtering is performed using a point spread function, as the filtering. However, Chui discloses a scheme for image clean-up and pre-coding, wherein a filter kernel is applied to a respective pixel in a set of pixels to smooth noise (Chui: column 2, lines 26-36) and one example of a kernel method is infinite impulse response (IIR) filtering (Chui: column 1, lines 40-48).

Since Matsumoto, Kokemohr, and Chui all relate to image noise filtering, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the filtering kernel of Chui with the system of Matsumoto and Kokemohr in order to provide one-pass or reduced number of stages in processing of images (Chui: column 2, lines 16-22).

Re **claim 11**, Matsumoto discloses that in said parameter generation step, the parameter is generated per image area by comparing the filtered one of the decoded image and the input image with the other on a per image area basis (Matsumoto: column 5, lines 12-21, the difference value between pixel values of input picture signal 101 and reproduced picture signal 109 is used in determining the correct filter).

Re **claim 24**, arguments analogous to those presented for claim 10 are applicable to claim 24. Therefore, claim 24 has been analyzed and rejected with respect to claim 10 above.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER FINDLEY whose telephone number is (571)270-1199. The examiner can normally be reached on Monday-Friday (8:30 AM-5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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